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EXAMINER	
EPPS, JANET L	
ART UNIT	**PAPER NUMBER**
1635	14

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/640,279	Applicant(s) SANGHVI ET AL.
	Examiner Janet L Epps-Ford, Ph.D.	Art Unit 1635

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 August 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-78* is/are pending in the application.

4a) Of the above claim(s) *42-78* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15 and 20-41* is/are rejected.

7)☒ Claim(s) *16-19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5, 7 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group II in Paper No. 13 is acknowledged. The traversal is on the ground(s) that since the claims of Groups I and II fall within the same class and subclass, and differ only in that in Group I the variable X2 is O and in Group II, X2 is S. According to Applicants a search in the same class and subclass for two possible values for X2 could easily be conducted without undue burden on the examiner. This is not found persuasive because contrary to Applicant's assertions, 536/22.1 is only one particular class and subclass that the Groups I and II are classifiable in. Group II can also be classified in 435/130, which encompasses processes wherein the organic product synthesized contains sulfur. Therefore, since an additional search is required in 435/130, a *prima facie* case for restriction has been established as per MPEP § 803, which states: "[F]or purposes of the initial requirement, a serious burden on the examiner may be prima facie shown if the examiner shows by appropriate explanation of separate classification, or separate status in the art, or a different field of search as defined in MPEP § 808.02." Although, restriction of group I and II is supported by the MPEP, group I and II will be examined as one invention. However, since Applicants have not provided any arguments traversing why groups III-VI should not be restricted from the elected invention, these groups will not be rejoined to the elected invention.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 42-78 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 13.

3. Claims 1-41 will be examined to the extent that these claims read on elected group II and group I.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-8, 12, 20-21, 31, 33-34, 39-41 are rejected under 35 U.S.C. 102(b) as being anticipated by Hirschbein.

Claim 1 recites a method of preparing an oligomeric compound comprising (a) providing a 5'-O-protected compound, (b) treating said 5'-O-protected compound with a deprotecting reagent, (c) coupling said 5'-O-protected compound with an activated phosphorous composition, (d) treating said extended compound with a mixture comprising an oxidizing reagent and a capping reagent. Claim 2, method of claim 1 further comprising treating said oligomeric compound with a reagent for a time and under conditions effective to remove said blocking groups. Claim 3, method of claim 2, wherein said reagent is effective to cleave the oligomeric compound from the support media. Claim 4, the method of claim 3, wherein said reagent is aqueous ammonium hydroxide. Claim 5, the method of claim 2, further comprising treating said oligomeric compound with a further reagent for a time and under conditions effective to cleave the oligomeric compound from the support media. Claim 12, method of claim 1, wherein said oxidizing reagent transfers a sulfur atom. Claims 20-21, the method of claim 1 wherein said coupling of the 5'-O-deprotected compound with the activated phosphorous composition is

performed in the presence of an activating agent, wherein said activating agent is 1-H-tetrazole. Claims 31, and 33-34 recite the method of claim 1, wherein the reactive sites of the support media, nucleotide, or oligonucleotide is blocked at reactive sites, wherein the blocking groups are base labile, and wherein the deprotecting reagent is basic. Claims 39-41 recite the method of claim 1 wherein the oligomeric compound comprises from 5 to about 50 nucleosides, from 8 to about 30 nucleosides, or from 15 to about 25 nucleosides.

Hirschbein discloses a method of synthesizing an oligomer comprising deblocking a blocked functionality, usually a 5'-tritylated hydroxyl (steps (a-b) claim 1) on the growing correct-sequence chain, or on the initial monomer attached to a solid phase support, to form a reactive functionality, such as a 5'-hydroxyl. Next the reactive functionality is reacted with a blocked and protected nucleoside phosphoramidite or phosphorthioamidite monomer or analog thereof (coupling step (c) of claim 1), usually in the presence of an activator, such as tetrazole (claims 20-21). The unreacted functionalities are capped (step (d) claim 1), and then oxidized. (col. 4, lines 51-68). The oxidation and capping steps can be reversed. (col. 5, lines 1-4).

Hirschbein used this process for synthesizing a 22-base phosphorothioate (anticipates claims 39-41), except that in place of the oxidation step, a sulfurization step was substituted, in other words, the synthesis consisted of repeated cycles of detritylation, coupling, sulfurization, and capping (col. 5, lines 41-50, anticipates claim 12 since the sulfurizaton step comprises the transfer of sulfur using a thiuram disulfide). The 22-mer was cleaved from the support and deprotected with concentrated ammonium hydroxide (col 5, lines 62-63; anticipates claims 2-5, 33-34). The sulfurization step comprises, preferably wherein, a thiuram disulfide is delivered to

the growing oligomer in a suitable organic solvent, such as acetonitrile, tetrahydrofuran, dichloromethane, or the like in a concentration of 0.01 M to about 2.0 M (col. 5, lines 15-20).

6. Claims 1-6, 9-11, 31 and 33-34 are rejected under 35 USC 102(b) as being anticipated by Caruthers et al. (US 4,458,066)

Claim 1 recites a method for preparing an oligomeric compound that encompasses (a) providing a 5'-O-protected compound, (b) treating said 5'-O-protected compound with a deprotecting reagent, (c) coupling said 5'-O-protected compound with an activated phosphorous composition, (d) treating said extended compound with a mixture comprising an oxidizing reagent and a capping reagent. Claim 2, method of claim 1 further comprising treating said oligomeric compound with a reagent for a time and under conditions effective to remove said blocking groups. Claim 3, method of claim 2, wherein said reagent is effective to cleave the oligomeric compound from the support media. Claim 4, the method of claim 3, wherein said reagent is aqueous ammonium hydroxide. Claim 5, the method of claim 2, further comprising treating said oligomeric compound with a further reagent for a time and under conditions effective to cleave the oligomeric compound from the support media. Claim 6 recites wherein the method of claim 1 further comprises treating said oligomeric compound with a deprotecting agent to deprotect the T3 hydroxyl protecting group. Claims 9-11 recite the method of claim 1 wherein said oxidizing reagent transfers an oxygen atom, and wherein said oxidizing reagent is iodine. Claims 31, and 33-34 recite the method of claim 1, wherein the reactive sites of the support media, nucleotide, or oligonucleotide is blocked at reactive sites, wherein the blocking groups are base labile, and wherein the deprotecting reagent is basic.

Caruthers et al. disclose a method for synthesizing polynucleotides wherein said method comprises deprotection of a 5'-tritylated nucleoside attached to a solid support via a phosphite linkage between 3'-OH of the nucleoside and the solid support (i.e. silica gel; col. 6, lines 1-7). The deprotected 5'-O of the nucleoside attached to the solid support (compound I, col. 6) is then reacted with a 5'-O-protected nucleoside compound comprising a secondary amino group covalently linked to the Phosphorous atom linked to the 3'-O of the nucleoside. The secondary amino group may comprise heterocyclics including tetrazole and unsaturated heterocyclics comprising a ring nitrogen ((col. 7, lines 17-25); see compound R4 of step (c) of instant claim 1). The next step comprises a capping step wherein the unreactive moieties are capped or blocked in order to prevent the formation of several deoxyoligonucleotides with heterogeneous sequences (col. 7, lines 61-68; anticipates claim 31). Oxidation is carried out by reaction with iodine or alternatively with peroxides like tertiary butyl peroxide and benzoyl peroxide (col. 8, lines 38-44). According to Caruthers et al., oxidation should be carried out before further condensation of nucleoside is attempted. Blocking groups are then removed by mild bases, such as ammonium hydroxide (col. 8, lines 50-52). However, the blocking groups can be removed in a step-wise fashion using triethylammonium thiophenoxide in solvent, e.g. dioxane or tetrahydrofuran. Thereafter, the product is treated with ammonium hydroxide to separate the synthesized oligonucleotide from the polymer support by hydrolyzing the ester linkage joining the oligonucleotide to the support (col. 8, lines 54-60; anticipates claims 33-34).

Caruthers et al. teach each and every aspect of the instant invention thereby anticipating Applicant's claimed invention.

7. Claims 1, 22-26, and 28-34 are rejected under 35 USC 102(b) as being anticipated by Caruthers et al. (US 5,750,666)

Claim 22 recites a method of claim 1 where said cyclic moiety is morpholino or phthalmido. Claim 23 recites a method of claim 1 wherein each L1 and L2 is C1-C6 alkyl. Claims 25-26 recite wherein L1 and L2 form a heterocyclic ring system, and wherein said heterocyclic ring system is morpholino. Claims 28-29 recite wherein said X1 is morpholino, and wherein said Pg is diphenylsilyethyl. Claims 31, and 32-34 recite the method of claim 1, wherein the reactive sites of the support media, nucleotide, or oligonucleotide is blocked at reactive sites, wherein the blocking groups are base labile or acid stable, and wherein the deprotecting reagent is basic.

Caruthers et al. disclose a method for synthesizing polynucleotides wherein said method comprises deprotection of a 5'-tritylated nucleoside attached to a solid support via acid catalysis (col. 52, lines 54-55). The deprotected 5'-O of the nucleoside attached to the solid support is then reacted with a 5'-dimethoxytrityl nucleoside-3'-aminophosphine (col. 52, lines 56-57). The next step comprises a capping step wherein the unreacted moieties are capped or blocked with acetic anhydride and N-methylimidizole (col. 52, lines 57-59). Oxidation is then carried out by reaction with aqueous iodine (col. 52, lines 59-61). The modified polynucleotide is then cleaved from the support, and the base and phosphate-protecting groups removed by treating the polymer-supported polynucleotide with concentrated ammonium hydroxide, i.e. wherein the protecting groups are base labile and stable in acid (col. 53, lines 38-40). See example XX wherein an oligonucleotide of 18 nucleotides in length was synthesized, comprising the heterocyclic base moiety adenine (col. 53, line 36).

Additionally, in another embodiment of Caruthers et al. the nucleoside monomers, used for coupling to the deprotected 5'-O- of the nucleoside or oligonucleoside attached to the support, comprise a 3'-O activated modified phosphorous group (see compound Ia, col. 3), wherein M is a heteroatom such as sulfur, oxygen or nitrogen (col. 4, lines 59-60), and X is a secondary amino group NR6R7, wherein R6 and R7 when taken together form (*inter alia)* an alkylene chain, or taken separately rpresent substituted or unsubstituted alkyl, aryl or aralkyl groups (col. 5, lines 18-30). In another embodiment X can be derived to include a morpholine group (col. 5, line 60).

Caruthers et al. teach each and every aspect of the instant invention thereby anticipating Applicant's claimed invention.

8. Claims 1-7, 9-12, and 20-21, 23-24, 28-31, 33-34, and 37-41 are rejected under 35 USC 102(b) as being anticipated by Ravikumar et al.

Ravikumar et al., in one specific example, teach a method for synthesizing oligonucleotides wherein said method comprised covalently attaching a 5'-O-Dimethoxytritylthymidine to CPG (controlled pore glass) through an ester linkage in a glass reactor, and deprotecting the 5'-OH of the attached nucleoside using a solution of dichloromethane and dichloroacetic acid (volume/volume). The product is washed with acetonitrile. Then, a 0.2M solution of 5'-O-(4,4'-dimethoxytrityl)thymidine-3'-O-(2-diphenylmethylsilylethyl N,N-diisopropylphosphoramidite) in acetonitrile and a 0.4M solution of 1H-tetrazole (activator in coupling step, col. 6, lines 64-67) in acetonitrile are added and reacted at room temperature for 5 minutes. The product is washed with acetonitrile, and then a 0.05M

solution of Beaucage reagent (sulfur transfer reagent) in acetonitrile is added and reacted at room temperature for 5 minutes. This sulfurization step is repeated one more time for 5 minutes. The support is washed with acetonitrile and then a solution of acetic anhydride/lutidine/THF (1:1:8), and N-methyl imidazole/THF is added to cap the unreacted 5'-hydroxyl group. The product is washed with acetonitrile and then treated with 30% aqueous ammonium hydroxide. This process allowed the synthesis of a 5'-TTTTTTT-3' phosphorothioate heptamer (col. 12, lines 35-60).

It is noted that in regards to the 5'-O-deprotected compound, 5'-O-(4,4'-dimethoxytrityl)thymidine-3'-O-(2-diphenylmethyl-silylethyl-N,N-diisopropylphosphoramidite), the diisopropyl group correspond to L1 and L2 in the formula recited in step (c) of instant claim 1, and the 3'-O-2-diphenylmethyl-silyethyl group corresponds to R5, X1 or Pg, in the structures recited in claim 1 of the instant application.

The method for synthesizing oligonucleotides as disclosed by Ravikumar et al. may also comprise wherein the oxidizing agent transfers an oxygen atom, for example wherein the oxidizing agent comprises: iodine/ tetrahydrofuran/water/pyridine or hydrogen peroxide/ water or tert-butyl hydroperoxide or any peracid like m-chloroperbenzoic acid (col. 7, lines 43-52).

Ravikumar et al. teach each and every aspect of the instant invention thereby anticipating Applicant's claimed invention.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

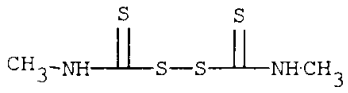
> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirschbein.

Claims 13-14 recite the method of claim 12 wherein said oxidizing agent is dimethylthiuram disulfide.

The discussion of Hirschbein set forth above is incorporated here. However, Hirschbein does not explicitly disclose a method for synthesizing an oligomer wherein the oxidizing agent which transfers a sulfur atom is dimethylthiuram disulfide.

Although Hirschbein does not explicitly disclose wherein the sulfur transfer reagent is dimethylthiuram disulfide, Hirschbein does disclose wherein the thiuram disulfides used in the disclosed method of synthesizing sulfurized oligonucleotides preferably has a structure according to formula I (col. 2, lines 46-68). Dimethylthiuram disulfide has the following structure:



This compound is encompassed by formula I of Hirschbein, specifically wherein at least two of any one of R1-R4 are hydrogen, and the remaining groups of R1-R4 are methyl groups. It would have been obvious to one of ordinary skill in the art at the time of filing to modify the method of Hirschbein to specifically comprise the use of dimethylthiuram disulfide as the sulfur transfer agent. One of ordinary skill in the art would have been motivated to make this modification

since substituting one of R1-R4 with a methyl group is a preferred embodiment of the Hirschbein invention (col. 3, lines 13-14), and furthermore substituting R1-R4 with hydrogen is also specifically disclosed as a possible substituent for the preferred thiuram disulfide according to formula I. Moreover, Hirschbein clearly suggests that making such substitutions would have produced a compound having similar properties as the dimethylthiuram disulfide compound used in the method of the instant claims, i.e. as a sulfur transfer agent used in phosphorothioate oligonucleotide synthesis (col. 3, lines 54-63).

Therefore, the invention as a whole is *prima facie* obvious over Hirschbein.

11. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Caruthers et al. in view of Santamaria et al.

Claim 15 recites the method of claim 1 wherein said capping reagent comprises about one part by volume of acetic anhydride in acetonitrile or tetrahydrofuran, added to about one part by volume of N-methylimidazole and pyridine in acetonitrile or tetrahydrofuran.

The discussion of Caruthers et al. set forth above is incorporated here. However, Caruthers et al. do not teach wherein capping of the synthesized oligomer comprises treating the oligomer with a capping reagent comprising about one part by volume of acetic anhydride in acetonitrile or tetrahydrofuran, added to about one part by volume of N-methylimidazole and pyridine in acetonitrile or tetrahydrofuran.

Santamaria et al. describe an automated method for synthesizing oligodeoxyribonucleotides, wherein the synthesized oligomer is capped using a mixture of capping with acetic anhydride and 1-methylimidazole in tetrahydrofuran and pyridine.

It would have been obvious to one of ordinary skill in the art at the time of filing to modify the method for synthesizing oligonucleotides of Caruthers et al. to utilize a capping reagent comprising about one part by volume of acetic anhydride in acetonitrile or tetrahydrofuran, added to about one part by volume of N-methylimidazole and pyridine in acetonitrile or tetrahydrofuran. One of ordinary skill in the art would have been motivated to make this modification since Santamaria et al. clearly discloses that a mixture comprising acetic anhydride, 1-methylimidazole, tetrahydrofuran and pyridine has specific utility as a capping reagent, and absent evidence to the contrary, it would have been obvious for one of ordinary skill in the art to substitute one functionally equivalent capping reagent for another. Additionally, although the Santamaria et al. does not expressly define the volumes of each component in the capping reagent as set forth in the instant claims, absent evidence of unexpected results, it would have been obvious for one of ordinary skill in the art at the time of filing to modify the parameters in a given reaction in order to optimize the results. See, MPEP § 2144.05 that states: "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation."

Therefore, the invention as a whole is *prima facie* obvious over Caruthers et al. in view of Santamaria et al.

12. Claims 37-38 are rejected under 35 USC 103(a) as being obvious over Caruthers et al. in view of Krotz et al.

Claims 37-38 recite the method of claim 1 wherein said deprotecting reagent is a fluoride moiety, and further wherein said fluoride moiety is boron trifluoride etherate (BF_3-etherate).

The discussion of Caruthers et al. set forth above is incorporated here. Caruthers et al. does teach the use of the dimethoxytrityl (DMTr) group as a protecting group (see col. 5, line 55). Additionally, Caruthers et al. teach that 5'-O-trityl oligonucleotides can be deprotected by using Lewis acids (col. 22, lines 30-35). However, Caruthers et al. do no teach wherein in the method of claim 1 said deprotecting reagent is a fluoride moiety, or wherein said fluoride moiety is boron trifluoride etherate.

Krotz et al. teach that in regards to the removal of protecting groups such as dimethoxytrityl (DMTr) moieties, mild acids are used to allow detritylation to occur while minimizing depurination. Furthermore, Krotz et al. teach that mild Lewis acids such as zinc bromide or boron trifluoride etherate could also be used for deprotection (col. 5, lines 18-25).

It would have been obvious to one of ordinary skill in the art at the time of filing to modify the teachings of Caruthers et al. to include wherein the deprotecting reagent used to remove the DMTr groups from the synthesized oligonucleotide is boron trifluoride etherate. One of ordinary skill in the art at the time of filing would have been motivated to make this modification since Caruthers et al. clearly teach that Lewis acids are useful as deprotecting reagents, and boron trifluoride etherate is disclosed in the prior art as a being functionally equivalent Lewis acid that is specifically useful for removing DMTr protecing groups from oligonucleotides. It would have been obvious to one of ordinary skill in the art at the time of filing to substitute one equivalent Lewis acid for another.

Therefore, the invention as a whole is *prima facie* obvious over Caruthers et al. in view of Krotz et al.

Claim Rejections - 35 USC § 112

13. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

14. Claims 27, and 35-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 27 recites the limitation "wherein each of said substituent groups," this limitation is vague and indefinite since it is unclear if the substituent groups referred to in claim 28 correspond to the "sugar substituent group" recited in claim 1, line 25. Additionally, claim 27 recites definitions of R1, R2, R3, and R4 that do not correspond to the definitions of R1, R2, R3, and R4 recited in claim 1.

Claims 35-36 depend from claim 32 which recites wherein said blocking groups are acid stable. Claims 35 recites wherein the deprotecting reagent is (*inter alia*) dichloroacetic acid, and trichloroacetic acid. Claim 36 recites wherein said deprotecting reagent is 2-5% dichloroacetic acid in dichloromethane or dichloroethane. Claims 35-36 are vague and indefinite since it is unclear how the recited acidic reagents can function as deprotecting agents since the blocking groups used in the method of claim 1 are acid stable.

Conclusion

15. Claims 16-19 are free of the prior art or any combination thereof. Claims 16-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janet L Epps-Ford, Ph.D. whose telephone number is 703-308-8883. The examiner can normally be reached on M-T, Thurs-Friday 9:00AM to 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John LeGuyader can be reached on (703)-308-0447. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3014 for regular communications and 703-746-5143 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.

Janet L Epps-Ford, Ph.D.
Examiner
Art Unit 1635

JLE
October 25, 2002

KAREN LACOURCIERE
PATENT EXAMINER